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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/811,070	03/29/2004	Gustaaf Willem Van Der Feltz	1857.2780000	8087

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STERNE, KESSLER, GOLDSTEIN & FOX P.L.L.C.
1100 NEW YORK AVENUE, N.W.
WASHINGTON, DC 20005

EXAMINER

KIM, PETER B

ART UNIT	PAPER NUMBER
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2851

MAIL DATE	DELIVERY MODE
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07/26/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

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Office Action Summary	Application No. 10/811,070	Applicant(s) VAN DER FELTZ ET AL.	
	Examiner Peter B. Kim	Art Unit 2851	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 23 May 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-9, 11-19, 23, 24, 27 and 28 is/are pending in the application.
 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 23, 24, 27 and 28 is/are allowed.
- 6) ☒ Claim(s) 1-9, 11-19 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Applicant's arguments filed on May 23, 2007 have been fully considered.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-5, 9, 13-16, and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hashimoto (GB 2321316) in view of Shiraishi et al. (Shiraishi) (5,117,255).

Hashimoto discloses a lithographic apparatus and a device manufacturing method comprising an illumination system (22), a patterning system (13), a substrate support (8), a projection system (12), a temperature measuring system (2), a calculating system (11), an adjusting system that adjusts the substrate temperature to compensate for deformation (p. 16-19). Hashimoto discloses temperature measure system comprising at least one sensor that measure the temperature of the substrate at each of plurality of regions across the surface, sensors distributed across the support and sensing the temperature of an adjacent region of the substrate (Fig. 1, ref. 2). Hashimoto also discloses temperature mapping system, the calculating system that develops a model of the substrate (Fig. 2). Hashimoto discloses device manufacturing method and the method of establishing a model comprising emitting projection beam, imparting to the beam a pattern, supporting a substrate, projection the pattern to target portion of the substrate (p. 12, lines 13, 14 and p. 16, lines 13-17), measuring temperature of the substrate, calculating a dimensional response and adjusting the spatial characteristics, and deriving a model of the

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dimensional response (p. 16, line 24 - p. 19, line 5). However, Hashimoto does not disclose adjusting spatial characteristics of the patterned beam to compensate for the dimensional response, wherein the cross-sectional shape, a position and a size of the patterned beam is adjusted. Shiraishi discloses a lithographic apparatus and a device manufacturing method comprising compensating for deformation due to temperature (col. 12, line 59 – col. 13, line 8) by adjusting spatial characteristics of the patterned beam relative to a substrate support wherein the spatial characteristic comprise a cross-sectional shape, a position, and a size of the patterned beam (Fig. 10, 11, col. 18, line 58 – col. 19, line 41). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to correct for deformation with higher overlay accuracy as taught by Shiraishi in col. 2, lines 35-59.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 6-8, 17, and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hashimoto in view of Shiraishi et al. (Shiraishi) as applied to claims 1 and 13 above, and further in view of Feder et al. (Feder) (2004/0012404).

The further difference between the claimed invention and the modified Hashimoto is the temperature sensor located above the substrate. Feder discloses in para 0032, the temperature sensor located above the substrate. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to provide the temperature sensor above the substrate

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in the invention of Hashimoto where the sensors are in a linear array extending transversely in order to accurately measure the temperature of the substrate.

Allowable Subject Matter

Claims 23, 24, 27 and 28 are allowed.

None of the prior art of record including Hada discloses a method measuring a first and second sets of temperature corresponding to different regions of a substrate, forming a first and second pattern of alignment features on respective regions, measuring first and second set of spatial distribution occurring during the first and second sets of temperatures, respectively and determining a dimensional response from difference between measurements of the first set of spatial distribution and measurements of the second set of spatial distribution.

Remarks

Based on an update search a new reference was found which is used in the current rejection. Applicant argued in the response filed on Jan. 11, 2006 that Hashimoto does not disclose changing of the spatial characteristic. Therefore, Shiraishi reference is used in combination with Hashimoto to reject the claims.

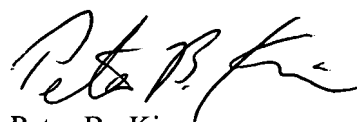
Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Peter B. Kim whose telephone number is (571) 272-2120. The examiner can normally be reached on 9:00 AM - 6:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Diane Lee can be reached on (571) 272-2399. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Peter B. Kim
Primary Examiner
Art Unit 2851

July 13, 2007